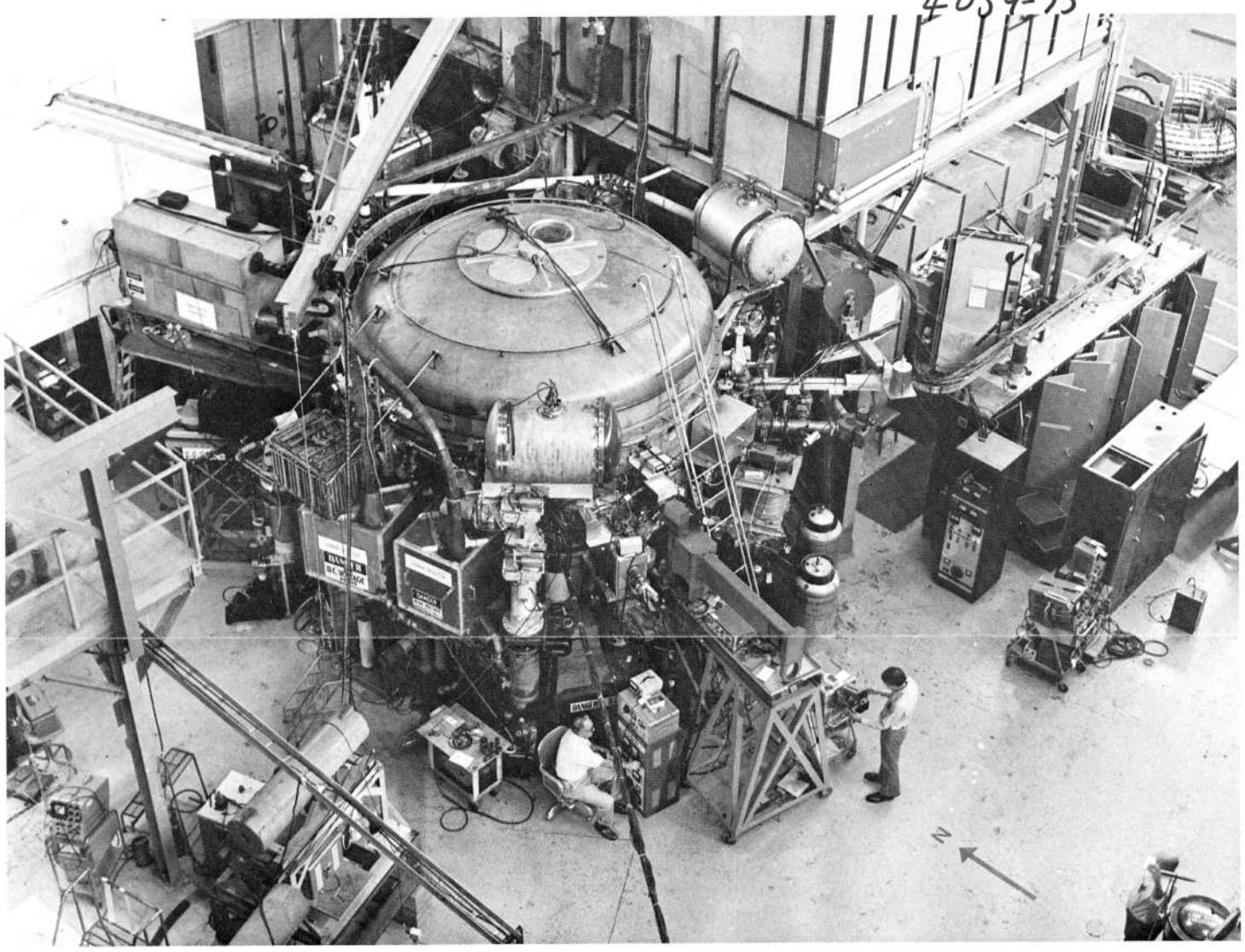
Nuclear Division News

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 7, No. 6/March 18, 1976

ORMAK ion temperatures reach 15,000,000° Celsius



FUSION RESEARCH — The highest ion temperature ever achieved in a U.S. tokamak experiment was attained recently in the ORMAK, an experimental device used in fusion research by scientists in the Thermonuclear Division. Ion temperatures up to 15 million degrees Celsius were recorded recently, passing another milestone in the program to develop fusion power for future generations.

Researchers at the Oak Ridge National Laboratory have passed another milestone in the program to develop fusion power for future generations.

Robert L. Hirsch, acting assistant administrator for the Energy Research and Development Administration's Solar, Geothermal and Advanced Energy Systems announced recently that "ion temperatures up to 15 million degrees Celsius have been recorded in the latest series of plasma heating experiments conducted with the Oak Ridge tokamak, ORMAK, an experimental device used in fusion research."

This is the highest ion temperature ever achieved in a U.S. tokamak experiment. Also, for the first time, a tokamak plasma has been produced in which the ion temperature exceeds the electron temperature, demonstrating one of the necessary characteristics of a practical fusion reactor.

Three-fold increase

The high ion temperature, achieved through the injection of 350 kilowatts of particle beam power into the plasma, represents an approximate three-fold increase over temperatures that were achieved with resistive heating in ORMAK last year.

This latest temperature achievement is a factor of about four short of the goal of 50 million degrees Celsius, the minimum temperature required in a fusion power reactor.

Hirsch said, "The ORMAK achievement is significant for at least two reasons. First, it indicates that plasma temperatures in tokamak systems can be increased many times over by increasing the power injection heat-

(Please turn to page 8)

Carbon composite material developed in Y-12 for USAF reentry vehicles

The Air Force Materials Laboratory at Wright-Patterson Air Force Base, Ohio, has credited the Oak Ridge Y-12 Plant for its assistance in the development of a carbon/carbon composite material which recently underwent successful testing for use as nosetips on ballistic reentry vehicles.

Photo on page 8

According to the announcement recently issued by the Air Force, the material was used "... in flight tests of carbon/carbon composite nosetips on ballistic reentry vehicles that saw temperatures in excess of 5,000 degrees F and speeds over 12,000 mph. The nosetips retained their shapes and protected the temperature sensitive packages carried inside the vehicles."

The announcement further stated: "The new reinforced carbon composite is essentially 100 percent carbon and contains a unique, multidirectional reinforcement. Developmental efforts are continuing at AFML to scale-up billet sizes and reduce fabrication costs."

The AFML also credited General Electric Company, Philadelphia, Pa., for its contribution to the development of the material.

The materials engineering department of Development Division at Y-12 developed the process with the support of the Metal Preparation's hot gas autoclave facility. Individuals involved in the effort included, among others, Rudy Paluzelle and Paul Meredith, Development, and Ken Valentine and H. T. Greene Jr., of Metal Preparation.

coming . . .

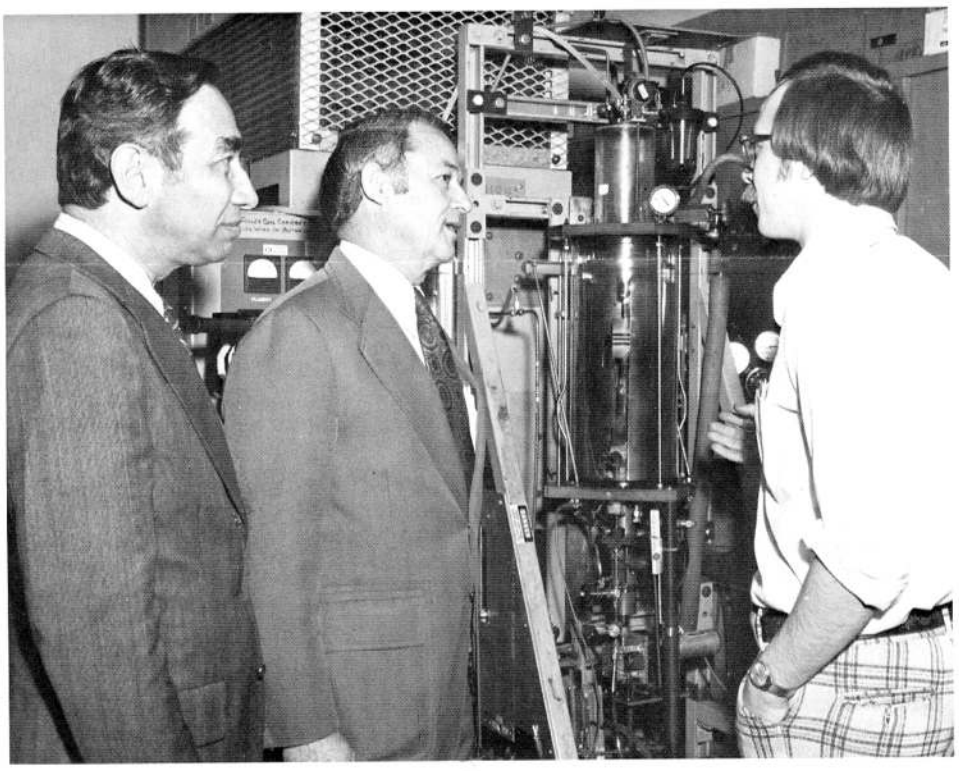
Due to the interest in the historical series on Oak Ridge communities, a future article will deal with Paducah's colorful past and vital present.

inside . . . PH 76-458

What's in a word? Lois Stonecipher, shown at left, processes thousands each day in her job in composition in the graphics, forms and offset photography section at the Oak Ridge Gaseous Diffusion Plant. That section and ORGDP's press and bindery section are featured in the second in a series of articles on Nuclear Division service groups, on page 4.

Other features in this issue:

ERDA officials visit



Administrators from the Energy Research and Development Administration's offices in Washington, D.C., visited Nuclear Division facilities February 26. In the top photograph above, Oak Ridge National Laboratory Director Herman Postma presents ERDA Assistant Administrator Austin Heller with an architect's rendering of the Annual Cycle Energy System (ACES) house currently under construction as a joint project of ORNL, ERDA, The University of Tennessee and the Tennessee Valley Authority. Below, John D. Holder, ORNL Metals and Ceramics Division, explains the internal zone growth system to Murray W. Rosenthal, ORNL Associate Director for Advanced Energy Systems, and Henry Marvin, ERDA's Director of Solar Energy Research. The system, developed by Metals and Ceramics Division, is a method of growing crystals which has potential applications in the growth of silicone for solar energy experiments.

NUCLEAR DIVISION SAFETY SCOREBOARD

Time worked without a lost-time accident through March 11:

Paducah	54 Days	590,000 Man-Hours
ORGDP	176 Days	4,180,450 Man-Hours
Y-12 Plant	5 Days	144,000 Man-Hours
ORNL	121 Days	2,345,911 Man-Hours

anniversaries

Y-12 PLANT

30 YEARS

Lacy D. Keele, Laboratory Operations; Howard M. Preuss, Product Engineering; Nell G. Cannon, Laboratory Operations; and Laura B. Hawkins, Beta 2 Chemistry.

25 YEARS

Isadore Sharper, Mabel C. Short, Charles T. Haun, Joe Bridges, James H. Nash, Clayton W. Cook, Eleanor P. Duke, Wayne J. Johnson, Kenneth D. Cook, Howard B. Jarvis, Jay L. Ledgerwood and William C. Johnson.

20 YEARS

Charles M. Gallaher, Edgar B. Duncan and James O. Olvey.

ORNL

30 YEARS

Oscar Sisman and Myer Bender, Energy Division; and Leon E. Morse, Chemical Technology Division.

25 YEARS

Harlan F. Dunlap, Alice P. Maxwell, Dennis M. Helton, Verda J. Meece, Thomas F. Connolly, Michael K. Wilkinson, John V. Hilyer, Helen P. Raaen, Margaret R. Day and Cleland H. Johnson.

20 YEARS

Alice T. McWilliams, Edward W. Jenkins, Odes W. Scates, Gerald Goldstein, Eugene C. Hise Jr., Mary H. Steele, Bobby E. Freeman, Hal Williams and Frederick G. Kitts.

Leitnaker heads ACS division

James M. Leitnaker, Oak Ridge National Laboratory Metals and Ceramics Division, has been elected 1976-77 chairman of the Nuclear Division of the American Ceramic Society. He will assume office at the Society's spring meeting in Cincinnati.

Leitnaker joined the Laboratory staff in 1965 after serving for four years as professor of chemistry at Baker University, Baldwin City, Kansas. He had previously been a member of the research staff at Los Alamos Scientific Laboratory. He holds an A.B. degree in mathematics from Baker University and a Ph.D. degree from the University of Kansas at Lawrence.

Leitnaker was elected to the rank of Fellow by the American Ceramic Society in 1973.

WANTED

ORNL

Two or three CAR POOL MEMBERS to join pool now in its seventeenth year. From Hillside-Pennsylvania-West Outer area, Oak Ridge, to any portal, 8:15-4:45 shift. Contact Tom Burnett, plant phone 3-6939, home phone 483-1975, or Dick Strehlow, plant phone 3-1175, home phone 482-3240.

FORM or JOIN CAR POOL from Norwood vicinity of Knoxville to either portal, 8:00-4:30 shift. Floyd Long, plant phone 3-6971, home phone 688-4847.

CAR POOL MEMBER from Walker Springs Road or Middlebrook Pike to East or North Portal, 8:00-4:30 shift. S. H. Dockery, plant phone 3-1612, home phone 690-3229.

JOIN CAR POOL from Maryville, 8:00 or 8:15 shift. Jim Holloway, plant phone 3-6921, home phone 983-4624.

Nanstad paper earns Foundrymen's award

Randy K. Nanstad, Oak Ridge National Laboratory Metals and Ceramics Division, has been advised by the American Foundrymen's Society that his paper, "Static and Dynamic Toughness of Ductile Cast Iron," has been selected for the 1975 Best Paper Award by the Ductile Iron Division of AFS.

The paper was co-authored by F. J. Worzala and C. R. Loper Jr. of the Metallurgical Engineering Department, University of Wisconsin. Award certificates will be presented at the 80th Casting Congress and Exposition in Chicago in April.

Nanstad received the B.S. degree in engineering from the U.S. Military Academy and the M.S. degree in nuclear engineering and the Ph.D. degree in metallurgical engineering from the University of Wisconsin. He joined the Laboratory staff in 1974 and is a research engineer in Metals and Ceramics' pressure vessel technology group. He is a member of the American Society for Metals and Alpha Sigma Mu, honorary metallurgical society.

He, his wife Sonya, and their three children reside in Oak Ridge.

nuclear division news

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—Member—
INTERNATIONAL ASSOCIATION OF BUSINESS COMMUNICATORS

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Oak Ridge, Tenn. 37830

question box

If you have questions on company policy, write the Editor, Nuclear Division News *(or telephone your question in, either to the Editor, or to your plant contact). Space limitations may require some editing, but pertinent subject matter will not be omitted. Your name will not be used, and you will be given a personal answer if you so desire.*

Safety awards for retirees?

QUESTION: I retired from Union Carbide at the end of 1975, and recently saw a picture of Y-12's safety selection for last year. Will I be eligible for one of these awards, and how may I select one if I am eligible?

ANSWER: To be eligible for a safety award you must have been on the payroll the last working day of the year. If you retired at the end of 1975 your retirement was effective January 1, 1976 and you would be eligible for an award from the plant in which you worked. If you have not had the opportunity to make a selection, you should contact your former supervisor or the Safety Department office in the plant where you worked and arrangements will be made for you to receive an award.

Professional society membership

QUESTION: Union Carbide encourages staff members to be active in major scientific societies and to participate in scientific conferences and conventions which may benefit the programmatic interests. Staff members are aware of the Company's membership in several industrial type organizations; however, the restricted list does not benefit individuals in many other scientific activities. Why is it that the Company will not reimburse for payment of individual memberships for the major scientific societies?

ANSWER: UCC encourages participation in professional societies on the basis that such participation helps a professional employee keep abreast of current technology in his/her field. Maintenance of professional capability and keeping abreast of current developments in respective fields are considered a personal responsibility and normally employees are expected to pay their own membership dues.

In some specific instances, it is considered essential to Company business to have access to publications, standards, participation, certification, etc., and in such very limited cases, there is a Company membership and the dues are paid by the Company and reimbursed by ERDA.

Examples of such memberships are: American Council of International Institute of Welding; American Society for Testing and Materials; Association of Scientific Information Dissemination Centers; Information Center on Nuclear Standards, etc.

UCC old-timers

In the February 19 Question Box, a question was answered relative to the five oldest Union Carbide Corporation veterans on the payroll, where company service is involved.

We were in error. Elmer G. Shesler transferred to the UCC-ND's Engineering Division on January 1, 1976, from the Carbon Products Division, Fostoria, Ohio. His continuous service dates to December 26, 1934.

Shesler

Shesler's name was in the computer system when the question was answered, but did not appear on the read-out. He is the second in company service in the four plants, bowing only to Carl C. McDowell, Paducah, who joined UCC in 1933.

Weekly paid supervisors?

QUESTION: At ORNL, some weekly employees are being used as supervisors of other weekly employees. When I say "supervising," I mean to the point of approving time off with or without pay, holding the yearly Performance Appraisal and Development Program review and other aspects of supervision.

It has long been the belief of many of us that one must be on monthly salary to be classified as a supervisor. Can a weekly employee serve as a full-time supervisor over other weekly employees? Can a weekly employee serve as a full-time supervisor over hourly employees?

ANSWER: A supervisor can be an exempt (monthly) or a nonexempt (weekly) salaried employee or an hourly employee.

In the Nuclear Division we do not have any hourly paid supervisors. We have several weekly salary classifications where the person is classified as "Leader," or "Chief" or in some cases "Senior," where a portion of their job requires their directing the efforts of others. A "weekly employee" may supervise whomever that weekly employee is assigned to supervise.

Normally, performance appraisals and approvals for time off with pay would be the responsibility of the monthly salaried supervisor.

next issue . . .

The next issue will be dated April 1. The deadline is March 24.

DIRECTOR VISITS — Jerome H. Holland, a member of the Board of Directors of Union Carbide Corporation, visited Oak Ridge facilities recently with Mrs. Holland. They are seen with Roger F. Hibbs, president of the Nuclear Division of UCC. Holland is also on the boards of the New York Stock Exchange, American Telephone and Telegraph Company, General Foods Corporation, Manufacturers Hanover Trust Company and Manufacturers Hanover Corporation. He had received a number of awards for public service, and has honorary degrees from 11 colleges and/or universities. In his undergraduate years at Cornell, he was an All-American end; he has been elected to the National Football Foundation's Hall of Fame.

Auxier designated HPS head

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John A. Auxier, director of the Health Physics Division at Oak Ridge National Laboratory, has been named president-elect of the Health Physics Society. His term as president-elect will begin in June 1976 and will end in June 1977 when he assumes the title of president.

He is a charter member of the Society and his participation has included membership on various committees and a term on the Board of Directors.

Auxier, a native of Paintsville, Ky., received the B.S. degree in physics from Berea College in 1951 and the M.S. degree in physics from Vanderbilt University in 1952. In 1972, he received the Ph.D. degree in nuclear engineering from Georgia Institute of Technology. He has been certified by the American Board of Health Physics.

In 1952, he joined the staff of the University of Texas Primate Laboratory where he coordinated and directed the health physics program and worked on the joint Oak Ridge National Laboratory-Primate Laboratory Exposure Experiment. He was subsequently appointed chairman of the Department of Physics and Engineering.

He joined the Oak Ridge National Laboratory staff in 1955 and has held a number of positions in the Health Physics Division; he was named division director in 1972.

Auxier has published extensively in the fields of radiation dosimetry and radiation physics. He has been one of the editors of the *Health Physics Journal* since its inception in 1958 and has been managing editor since 1974.

John A. Auxier

His professional memberships include the Civil Defense Society, the American Association for the Advancement of Science, the Southern Section of the American Physical Society and the East Tennessee Chapter of the Health Physics Society. He is a member and the first president of Scientists and Engineers for Appalachia and a special consultant in dosimetry to the Radiation Effects Research Foundation. He has been the recipient of the National Institute for Disaster Mobilization's National Preparedness Award and the Health Physics Society's Elda E. Anderson Award.

TAT ADMISSION

Do you know someone interested in entering the Training and Technology, yet they are unable to obtain a sponsor? Under the Adult Education Program one may pay his own tuition. Quality training for quality jobs is the real meaning of TAT. Details may be obtained from extension 3-5968, from C. E. Elder, John Simpson or Jack Fritts.

165698

Processing the printed word

You say you need 50 copies of your memo reproduced by tomorrow morning? Five hundred copies of the program for that conference designed and printed by the first of next month? Two hundred copies of your divisional five-page newsletter, complete with photographs and illustrations — yesterday?

Chances are good that the graphic arts and reproduction departments in one of the four Nuclear Division facilities can come to the rescue.

Second in a series featuring Nuclear Division service groups

Cases in point are the graphics, forms and offset photography section and the press and bindery section at the Oak Ridge Gaseous Diffusion Plant. Managed by Willard Moore and Bill Carruth, respectively, the two groups combine their nearly 30 employees to provide what in many instances are the most complete printing and graphics services within the four plants. Both sections are part of ORGDP's Office Services Department, headed by A. A. Toney.

"Our graphic arts section is not the largest — Bill Colwell's group (at Oak Ridge National Laboratory) is quite a bit bigger," Moore points out. ORGDP's graphics group does, however, provide some unique services. The forms design section is the only one of its kind in the Nuclear Division. It is on their drawing boards that all of the forms we use daily — the onces bearing the tiny inscription "UCN-" — are born and updated.

Another special feature of Moore's section is its reproduction photography section. Newsletters, brochures, or any kind of printed material requiring photographs can be done only at ORGDP, where photo negatives can be made for offset printing. Two huge cameras are the primary pieces of equipment. One, a process camera, can reduce on a five-to-one scale and enlarge up to two-and-a-half times in making negatives for offset printing. The other, a photomechanical transfer (PMT) processor, uses special chemically-treated paper to produce a positive directly from a positive, eliminating the need for a negative altogether.

What is "offset" photography? Very briefly, offset, or "cold press," printing is done with a thin metal (or other material) plate that has been wrapped around a press cylinder.

PH 76 457

Loretta Mitchell, forms design, puts the finishing touches on an assignment.

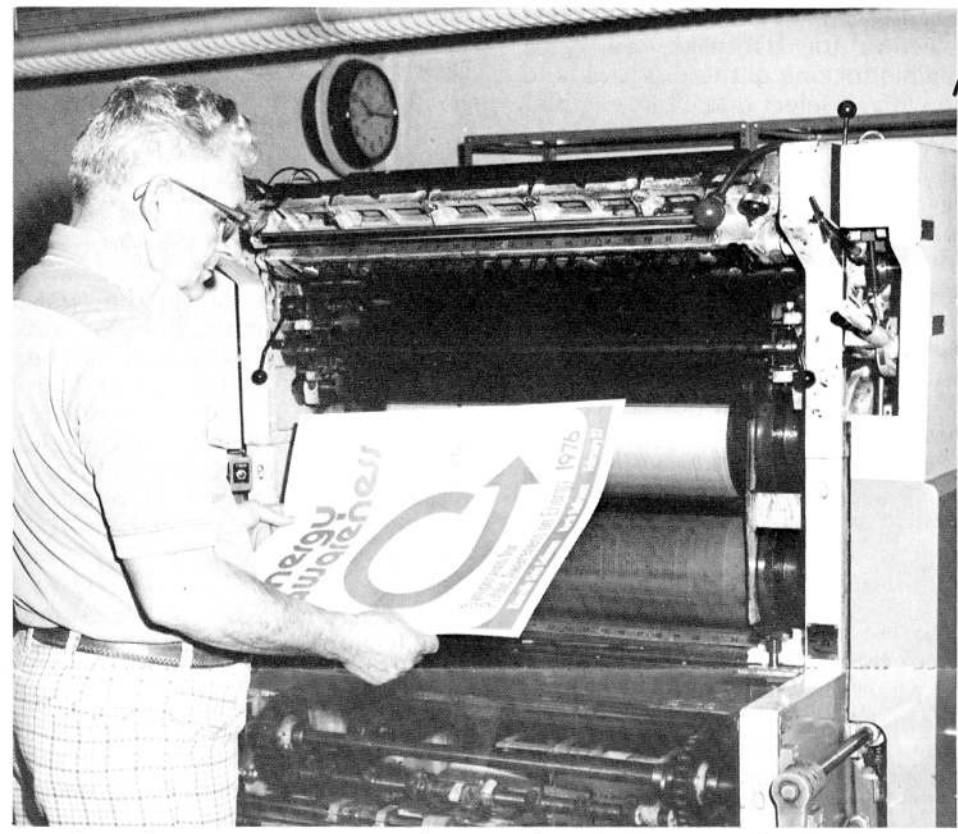
In reproduction photography, Richard Wood develops a plate which will be used to print covers for an ORNL report.

When a page of type has been laid out, it is photographed, and the negative transferred by a chemical process onto the plate. The actual printing is based on the principle that grease and water don't mix: the image area of the plate accepts the ink (grease); the nonimage area receives water and repels ink. There are other methods of getting an image onto a plate, as will be seen below; but only offset photography will handle the reproduction of photographs.

Poring over a printing order: Bill Carruth, left, and Willard Moore.

Rounding out the graphics section are 10 more employees. Four are illustrators, who will provide just about any kind of drawing one might want for a printing order. Two more work in composition, where all of the typing involved in an order is done on IBM composers and a special machine called a "headliner."

PH76 457



Buck Begley, a 28-year veteran of ORGDP's printing group, checks the first sheet of an order as it comes off his 19x25 offset press, press and bindery's largest.

The remaining four employees make up the staff in planning and records. In these offices orders from the four plants are received, recorded, and sent on their way to completion, which sometimes involves routing to a commercial printer for reasons of time or capabilities.

When graphics, forms, and offset photography has finished with an order, it is either "camera-ready" or already in the form of a metal plate. In either case, it moves on to press and bindery.

* * *

"There are three ways to make plates for offset printing," Bill Carruth explains to visitors to the press and bindery section. "The first is through offset photography, the procedure they use in the reproduction photography group. Another method is through the use of a 3M camera, which can reduce and enlarge, but can't handle photographs." (All four plants — Paducah, ORNL and the Y-12 Plant, as well as ORGDP — currently use this technique.)

The third method, Carruth continues, is the making of electrostatic plates (made of paper) with a device called a Total Copy System, used both at ORGDP and Y-12, which makes the plates, puts them on the press, runs them and collates the printed sheets. "This method is economical, but limited. The Total Copy System can run over 9,000 pieces in an hour, but it won't take photos or fine detail," Carruth says.

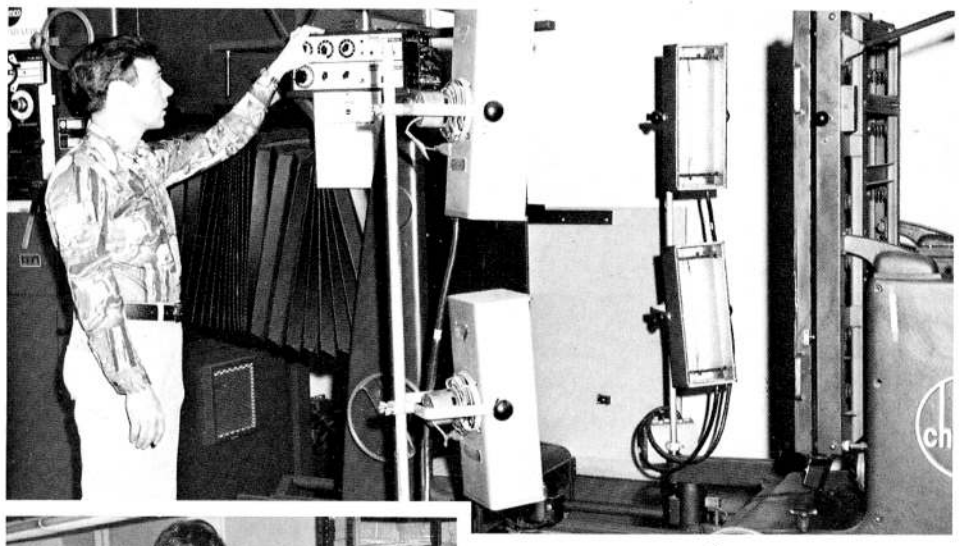
Press and bindery makes use of all three methods in its daily production of the printed word. Its press room, where thousands of pieces of printed material are run, trimmed, folded, stapled, packaged and shipped each day, is a constant roar of machinery. The visitor maneuvers around offset presses of varying sizes, all churning out page after page of printing.

Paper is everywhere. A stock of wrapped, uncut sheets six feet high and nearly four feet square stands in the center of the room, awaiting transformation into 7,000 issues of the *ORNL Review*. A few feet away stands a giant 42-inch cutter, resembling a huge guillotine. (All paper is cut twice, before and after printing.)

The guillotine effect stops with appearances, however. Gerald Rea,

(Please see page 5)

PH 76-460



PH76-459

Preparing to make a negative from a camera-ready page, Rufus Marney sets the controls on reproduction photography's process camera.

Gerald Rea, left, and Donny Bartra collate an order in the press and bindery section.

The printed word (Continued from page 4)

of binding, finishing and shipping, points out two safety knobs, one on either side of the cutter. Before the eight-inch blade can drop, the operator must be pulling both knobs — which means that both hands are occupied and not under the blade.

Rea demonstrates the binding and finishing equipment — some as old as the bindery itself. "This drill press (a device that will punch one hole through 500 sheets at a time) is an antique, but it works perfectly," he says. A stapler dates from 1943. The same goes for a folder — but again, all are in good working condition.

Other pieces are more current. The bindery's 12-station collater, which will collate 48,000 pieces in an hour at full speed, boasts a new stapling attachment which collates and staples in one operation. A plastic wrapping machine surrounds neatly-stacked sheets with plastic and seals it in a shrinking process at 750 degrees F.

But getting back to that memo you needed. If you absolutely *have* to have it by tomorrow — visit the folks in graphics and reproduction at your plant. With characteristic efficiency, and backed by a wealth of equipment, they'll probably come through for you.

retirements

PH76-491 PH76-559 PH76-558 0720-76

Ely

Sproles

Taylor

Maggart

James B. Ely, Fabrication and Maintenance Division at the Oak Ridge Gaseous Diffusion Plant, will retire the end of this month, completing almost 31 years company service. He lives at 2321 Capri Drive, Knoxville.

Marion H. Sproles, in the same division at ORGDP, ends almost 25 years service March 31. He lives at 119 Johnson Road, Oak Ridge.

Durward O. Taylor, also in the F & M Division, lives at 320 Woodlawn Drive, Kingston. He came to ORGDP in 1945.

William T. Waldroup, an electrician in the F & M Division, retired at the end of January, marking 30 years of company service. He lives at Route 4, Kingston.

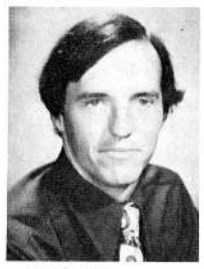
Harry C. Maggart, an accountant in Oak Ridge National Laboratory's Finance and Materials Division, took early retirement at the end of February. Maggart, who joined the Nuclear Division in 1947, makes his home on Beaver Ridge Road, Knoxville.

TECHNICAL CALENDAR

March 20

Office of Naval Research HQ 208 seminar: "The Liquid Metal Fast Breeder Reactor." (All Saturday sessions open to the public.) "Organization of U. S. Breeder Program," John M. Haffey, Director of Information, Project Management Corporation, 9 a.m.; "Environmental and Safety Programs," Anthony R. Buhl, ERDA Assistant Director for Public Safety, 10:45 a.m.; "Plant Description of the Clinch River Breeder Reactor," Richard E. Jortberg, Assistant General Manager for Engineering, Project Management Corporation, 1:30 p.m.; "The Breeder Fuel Cycle," D. C. Gibbs, Manager for Engineering, Project Management Corporation, 3 p.m. Museum of Atomic Energy conference room.

Brown, Fussell, Smallmon senior inspectors at Paducah



J. D. Brown

R. A. Fussell

J. T. Smallmon

Three senior inspectors have been named at the Paducah Gaseous Diffusion Plant: James D. Brown, Robert A. Fussell and James T. Smallmon.

Brown, a native of Paducah, has been associated with Union Carbide almost two years. He formerly worked with Modine Manufacturing and Dixon R-1 Schools. He holds a B.S. degree from Murray State University.

Mrs. Brown is the former Lynn Vaughan, and they have a daughter and a son. The Browns live at Route 8, Old Mayfield Road, Paducah.

Fussell was born in Camden, N.J., and attended the West Kentucky Vocational School and Paducah Community College. He worked with AVCO and Lycoming, Bridgeport, Conn., before joining Union Carbide in 1972.

He is married to the former Betty Jean Connors, and they have four sons. They live at 510 West 12th Street, Metropolis, Ill.

Smallmon, a native of Paducah, attended Tilghman Vocational and a U. S. Army Training School. He has been with UCC 21 years, and worked with International Shoe, F. H. McGraw and M. W. Kellogg prior to that.

Mrs. Smallmon is the former Sue Ellis, and they have two daughters and two sons. The Smallmons live at Route 2, Paducah.

Individual Retirement Accounts 'IRA' programs can be costly

Individual Retirement Accounts (IRA) have been heavily promoted during the past year. These are the "do-it-yourself" retirement plans, usually set up for an individual by a bank or insurance company, to which an individual can contribute up to $1,500 and get a tax deduction for that amount against the individual's 1975 Federal income tax.

From the number of questions that have been received, it appears that some employees have set up IRA programs under the assumption that the employee was not covered by the Company's Pension Plan due to the age or Company service requirements for a Pension benefit.

Legal research

One of the principal requirements for an IRA program is that an employee cannot be covered by any "qualified plan" by any employer during any part of the year. The Law Department has researched this question and has advised that the Union Carbide Pension Plan is a "qualified plan" and that every employee is considered by the law as being covered by the Pension Plan. It makes no difference whether or not an employee has reached the age and/or service requirement for "vested" benefits.

The 1975 W-2 Form, which the Company is required to file with the IRS showing each employee's annual earnings, answers "yes" to the question of whether the employee is covered by a "qualified plan."

April 15 withdrawal

Since the Pension Plan is a "qualified plan," Nuclear Division employees can not claim an IRA deduction on their 1975 Federal income tax return.

Employees who may have set up an IRA program are advised that they should consider making arrangements to close out or withdraw from the IRA arrangement before April 15, 1976, in order to avoid tax liability and problems with the Internal Revenue Service. If withdrawal is not made before April 15, 1976, it appears possible that any withdrawal after that date will subject the entire fund to being taxed as ordinary income with an additional penalty of 10 percent. It also appears that such employees could be required by IRS to comply with rather onerous filing regulations.

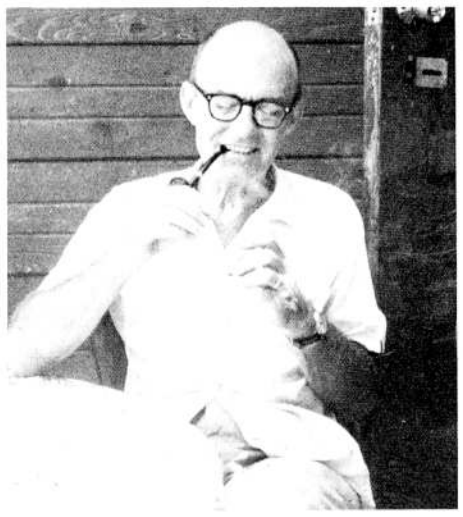
Employees who already have filed a 1975 Federal income tax return with the IRA deduction, should file an amended return after closing out their IRA program.

A general guideline

The above information is intended as a general guideline in helping employees understand the Federal income tax consequences of participating in an IRA arrangement. EMPLOYEES WHO NEED MORE INFORMATION ARE URGED TO CONSULT A QUALIFIED TAX ADVISOR BEFORE APRIL 15, 1976.

It should be noted that this article concerns only Individual Retirement Accounts and that this should not be confused with Keogh Plans, which also are known as "HR-10 Plans" and "Self Employment Retirement Plans." The Keogh Plan looks at the character of the income (self-employment earnings) and not at the status of the taxpayer. A Nuclear Division employee who has self-employment earnings in addition to his Company income may be able to set up a Keogh Plan, but it is understood that payments into the plan can only be made from self-employment earnings.

recreationotes



HITS STRIDE — Roy Clark really hit his stride during the recent All Carbide Bowling Tournament. His even 1900 all events' score took top money as the three Oak Ridge plants staged their annual inter-plant competition. Ernie Bogle's 1727 scratch score was high, discounting handicaps.

BOWLING TOURNAMENT

Ernie Bogle's high scratch All Events score in the recent All Carbide Bowling tournament of 1727 gave him the crown of champ, as Roy Clark put a 1900 handicap score up there, too. Bogle's handicap score was 1889. John Harding came in third with an 1879.

High team scores went to the Knuckleheads with a 2653 scratch tally, as they took handicap highs, too, with a 3007. The Atoms placed second with 2988.

Ray Walker's 673 handicap high took men's singles, as Bill Schwab rolled a 612 scratch to take the trophy. Frank Hamilton's 665 was second, and Seth Wheatley rolled a 663, as did Bill Schwab.

Paul Gnadt and Reginald McCulloch took top money in men's doubles, with a 1321. The trophy for scratch rolling went to the Fletcher-Ladd combo.

The Ridgers took highs in women rolling, with a 2423 scratch. Top money went to the Alley Cats with a 2943 handicap total, as the Mouse-chasers put a 2889 up for second place.

Elaine Griffies was high in scratch counting in singles with a 557. Jane Williams captured top handicap awards with a 664, followed by Faye Fletcher, 650; and Brena Stevens, 639.

Mary Goldberg and Ruby O'Kain took doubles honors with a 1131 scratch, 1236 handicap tally. Margaret Duff and Elaine Griffies posted a 1222 to take second place.

Mary Foley repeated as champion woman bowler of the year, with a 1622 scratch talley. Jane Williams' 1871 All Events handicap total earned her top money.

In Mixed Doubles it was Jean Zamzow and Jane patton with a scratch total of 1138. Dot Griffith and Odie Tidwell took money tops with a 1267 handicap total and Churchill Moore and Kathy Young came in second with 1263.

Committee persons all say thanks for scorekeepers, tally sheet checkers and everyone else who helped make the tournament a success.

CARBIDE SKEET LEAGUE

February skeet results show G. J. Kwiecien, ORNL, grabbing first position, firing 48.936. James Rhew, Y-12, cleared 48.842; and John Basler, ORNL, fired 48.738.

Membership in the Oak Ridge Sportsman's Club is not a requirement to fire in the Sunday shoot-outs. All you have to do is show up.

GOLF LEAGUES

The Recreation Department will again sponsor golf leagues for summer play in the Oak Ridge area. Leagues will be held at the following courses, if sufficient interest is shown: Melton Hill, South Hills, Southwest Point and Deadhorse Lake.

Twosomes should telephone extension 3-5833 and give the course on which they wish to play.

BASKETBALL LEAGUES

The GBU's won the Atomic League with a 11-0 worksheet to their credit . . . no defeats.

The Labor Gang took the Nuclear League with an 8-0 record.

A tournament is in progress and will be reported in a later issue.

VOLLEYBALL LEAGUES

The Over-the-hill Gang took the Nuclear League with a 36-12 won, lost record.

The Diggers swept the Atomic League with a 41 win, and only one game loss record. The Skinks took the Carbon League with a 48-6 record.

Sportsmanship trophies went to the Skinks in the Carbon League, the Sloths in the Nuclear League, and the Ecomen in the Atomic League, as action for the year gound to a halt last week.

Y-12 BOWLING

The Mini-Strikes are still supermen in the C League, rolling six games better than the Rollmasters. Tom Hillard's 669 scratch series still rules the roost.

The Friskies stay first in the Y-12 Mixed League, looking to face the Rollers in a roll-off for league championship.

The Playboys are a one-point favorite in the Classic League, with the Rippers' Jim Lawhorn ruling in individual honors with a single of 256, in scratch count, and 256 in handicap!

ORGDP BOWLING

Oleta Carden led the ORGDP Women's League recently, with a 542/632 series. The Uptowners keep a rather comfortable lead as the league nears its final stages.

The All Stars' L. Owens paced the Tuesday League in late February with a single of 222 and a scratch series of 257. Furman Strang rolled handicap highs of 257 in singles, 650 in series. The All Stars keep a 41 point lead over the City Slickers.

The Wednesday League sees the Hi-Rollers in a mere one-point lead over the Planners and Amps. C. A. Carmichael paced bowlers with a single of 238, and a series of 665.

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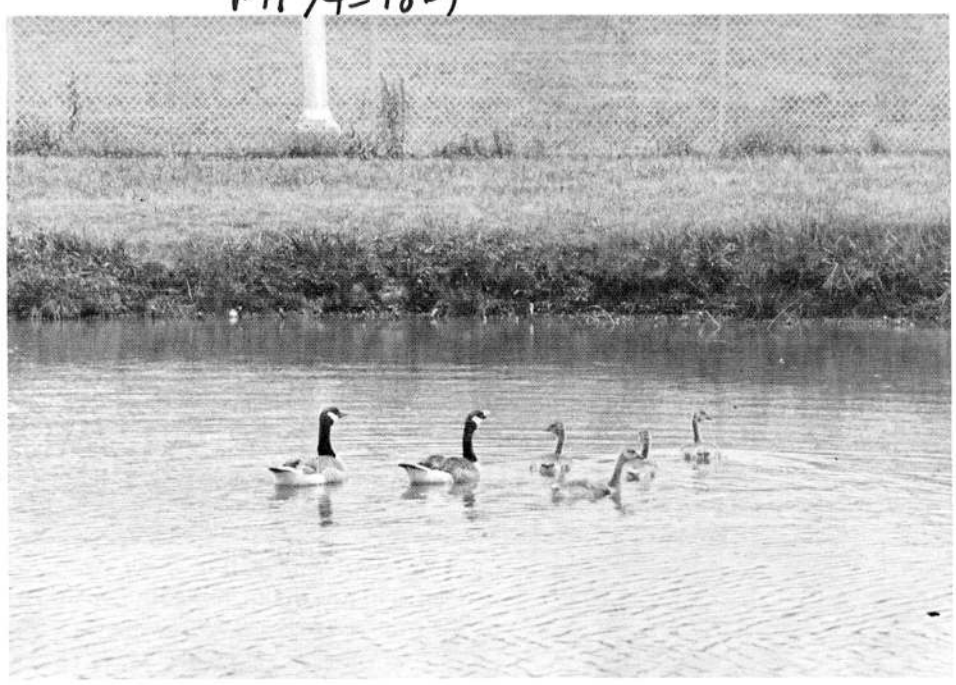


NATIVE TO THE AREA — Canadian geese, who normally don't make this area their year-round residence, have taken up permanent homes in the lakes surrounding the area. This pair, with their second family, live near the Oak Ridge Gaseous Diffusion Plant. They mate for life and for the second year tend their young in Watts Bar Lake.

2ND ANNUAL TALENT SHOW PLANNED

The second annual Roane County Talent Show will be staged at 7:30 p.m., April 23, at Roane State College gymnasium. Many Nuclear Division employees again will lend their time and talents to the up-coming production. The funds will go to the Roane County Unit of the American Cancer Society.

A jamboree of singing (Roane State Jazz Band, country, classic, pop, gospel and Bluegrass), clogging, magic, pantomine and other entertainment will fill the evening.

Margaret and Ray Stewart, Oak Ridge Gaseous Diffusion Plant, are co-chairmen of special events for the local unit of the ACS. They are soliciting new talent to join the big show. Austinini, Larry Bohannan, The Sweet Adelines Quartet from the Atomic City, and many others have already agreed to appear on the variety show.

Officers in the ACS are John Arendt, regional vice president of East Tennessee; Sam Woodfin, local president; Dewey Swicegood, Bill Wyatt, Ed Powell and Ron Todd, vice presidents; Betty Powell, secretary; Elizabeth Woody, memorial chairman; and Georgette Shooster, treasurer and service chairman.

Workers in the talent show are Mary Johnson and Betty Powell, both from ORGDP, ticket sales; Bob Ludwig and Howard Horne, both from Y-12, staging and lighting; Robert Clouse, Y-12, emcee; and Howard Phillips, ORGDP, photograph. T.A. Williams, Y-12, will also assist in staging and lighting.

Last year more than 2,000 attended the event to raise funds for the Cancer Crusade. This year's show promises to be even bigger.

calendar

TECHNICAL

March 23

Sigma Xi Public Lecture: "Logic: from A to G," Paul R. Halmos, Distinguished Professor of Mathematics, Indiana University. American Museum of Atomic Energy auditorium, 8 p.m.

March 25

Distinguished Lecturer Seminar: "Gene Mapping by Electron Microscopy," Norman Davidson, California Institute of Technology. Large Conference Room, Building 9207, 3 p.m.

COMMUNITY

March 21

Community Art Center Film Club presents: "Antonio Das Martes," Brazil 1972. Jefferson Junior High School Auditorium, 8 p.m. Admission: adults $1.75; students $1.

Children's Museum presents: "Bali — The Garden of Southeast Asia." Children's Museum, 2-4 p.m. Admission free.

March 26-27

Junior Playhouse presents: "The Stingy Mr. Pennypincher," Oak Ridge Playhouse, 1 and 3 p.m. Admission: $1.25.

ORNL BOWLING

Norm Teasley, Cellar Dwellers, boomed out a big 256 game scratch the first night of rolling in the windy month. The Remkeys stay a hair's breath out front, ahead of the Alley Rads. R. C. Crowe, Damagers, rolled a rollicking 669 handicap series.

The ORNL Ladies League has the Mousechasers one point ahead of the HP-ettes who stay one point ahead of the Spinners. Faye Fletcher saw a 201/240 game, with a 646 handicap series.

The Possibilities and Odd Balls are tied for the lead in the Carbide Mixed League, after Frank Davis rolled a 587 scratch series, and Mae Davis put a 522 up on the boards.

wanted

ORNL

RIDE WANTED for UT intern beginning March 31 through June 4 from Knoxville UT area to East Portal, straight day. Contact Karen Cromer, home phone Knoxville 974-5613, or call ORNL extension 3-6265 and leave message.

Acne facts and fantasies

by T. A. Lincoln, M.D.

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 20, Y-12, or call the news editor in your plant, and give him or her your question on the telephone.)

Acne is the most common skin disease of young people, and elaborate myths have developed to explain its perverse behavior. The following list of facts and fantasies may help parents reassure their distressed adolescents and get them on the road to effective control.

FANTASY: Acne is a white man's curse.

FACT: Although acne is far more prevalent in whites than either blacks or orientals, it is not their exclusive burden. It is about ten times more common in whites than blacks and occurs infrequently in orientals.

FANTASY: Acne is due to excessive sex hormones, especially in boys. It occurs during puberty and goes away after age 21.

FACT: There is no evidence that there is any sex hormone abnormality in young people with acne. Neither a supersecretion or an undersecretion has been associated with acne. This disease can occur in infants and is a fairly common problem in men and women in their twenties to thirties. It occasionally is seen in aged people.

The reason it is most common at puberty is that testosterone, the male sex hormone strongly influences certain types of skin under certain circumstances. It is not the level of the hormone that counts the most, it is how it is handled by the skin. Since sex hormone levels may be high in adolescents, and skin changes are occurring, it has been popular to associate the two. Severe acne has been seen in boys with relatively low hormone levels and relatively clear skin seen in boys with high hormone levels.

FANTASY: Chocolate makes acne worse.

FACT: There is little evidence that diet plays any significant role in causing acne. There is no need to follow any specific diet. If, however, a patient is convinced that specific foods "seem" to aggravate the acne, then he or she should probably avoid these foods.

FANTASY: Acne is caused by sexual frustration or sexual activity.

FACT: That idea is nonsense.

Polygenic disorder

FANTASY: Acne is inherited.

FACT: There is undoubtedly a familial component in many cases of acne. In one study of identical twins, if one twin had it, the other one also had it in 98 percent of cases. Acne has been described as a polygenic disorder, which means that the full expression of it represents the sum of many genes, each of which is not strongly active by itself.

FANTASY: Acne is just one of those things that young people have to live through and treatment is useless.

FACT: Not so. Acne is adversely influenced by emotional stress, lack of adequate sleep, amphetamines ("speed") and improper medicines. Treatment with topical Vitamin A (tretinoin) and benzoyl peroxide gel, often in combination with antibiotics, is frequently highly effective. Unfortunately, only about 10 percent of cases of acne are ever treated by a dermatologist. Early treatment is important and can usually prevent the development of severe scarring.

FANTASY: Antibiotics are all one needs to take.

FACT: Although a tetracycline antibiotic is useful in treating inflammatory and pustular acne, it should not be used indiscriminately and is almost never the sole treatment.

Blocked oil ducts a problem

FANTASY: Acne is due to oily skin.

FACT: It is true that acne usually occurs at puberty, when the oil secreting glands become enlarged, and acne patients generally produce excess oil, called sebum. However, there are those who produce large amounts of sebum who have no acne and there are those with severe acne who produce only small amounts.

An important cause of acne is an abnormal lining in the tiny duct of the oil gland. There is an excess shedding of scaly material which blocks the duct, causing comedos (blackheads or whiteheads). The retained sebum is inflammatory, especially when it breaks out of the duct into the surrounding tissue.

Bacteria thrive on this oily material and break it down, releasing free fatty acids which are extremely irritating. Treatment is designed to reduce the abnormal shedding of cellular material into the oil ducts so they won't get plugged and then controlling the infection to prevent the breakdown of sebum.

FANTASY: Acne activity in girls can be used to tell when a girl is menstruating.

FACT: Acne sometimes gets worse during the premenstrual period but it is a poor guide of where a girl is in her menstrual cycle.

FANTASY: Blackheads, whiteheads and pustules should be squeezed to get the foreign material or pus out of the skin.

FACT: Squeezing often causes ruptures of the oil duct beneath the skin, spreading irritating free fatty acids to adjoining tissues. Dermatologists can remove blackheads safely, but indiscriminate squeezing by patients will only make things worse.

FANTASY: Acne is best treated by washing the face many times a day to remove excess oil.

FACT: The acne process occurs about two millimeters below the surface of the skin, so scrubbing with soaps has little effect. Acne is not caused by dirty skin, and excessive washing can sometimes do harm.

FANTASY: X ray treatment really works.

FACT: X ray treatment may work in some, but only by damaging the skin. It should not be used.

Bloodmobile visit scheduled at Oak Ridge March 24-25

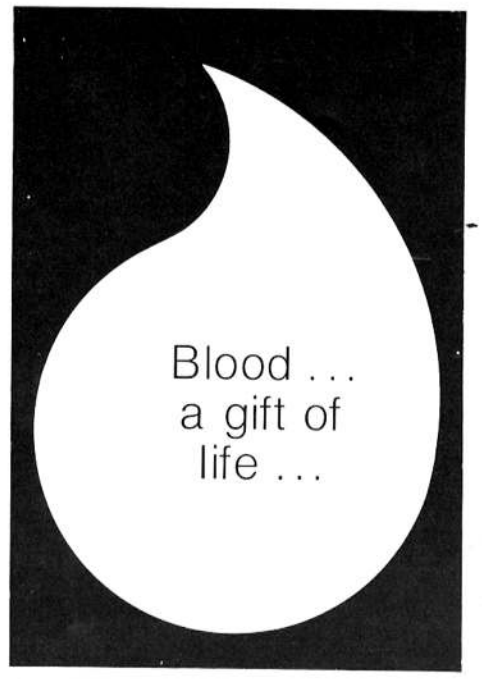
As the nation moves toward the worthy goal of an all-volunteer blood donor program (where no cost or membership fee is required), Oak Ridge gears for another visit from the Red Cross Bloodmobile.

The next visit is set for Wednesday and Thursday, March 24 and 25, at the National Guard Armory on the Turnpike. Hours on Wednesday are from 3 until 9 p.m. and on Thursday from noon until 6 p.m., which gives day workers and shift workers ample time to drop by and donate.

About 45 percent of the population cannot give blood (many are either over-aged, or under-aged, and some cannot give because of health reasons.) This leaves the task of giving to the remaining 55 percent of us. Being scared is not a good reason for not donating blood. The process is painless and takes less than an hour. While the majority of donors appear on a regular basis, the Red Cross welcomes "first-time" donors.

Quotas are going up for Red Cross chapters all over Tennessee, as the need for blood increases. Open-heart surgery requires a minimum of 10 units of blood, and blue-baby transfusions require seven or eight. These two operations are saving lives among us almost daily. One Oak Ridge resident recently had heart surgery in California, and because his neighbors back home had cared enough, his blood needs were furnished free on the West Coast. No replacement was required. The need for blood was there, and that was enough.

Giving blood is not only a good thing to do, it is also an assurance that blood will be available if you yourself should ever need it . . . or if a member of your family should require it.



Why not plan to stop by next week at the Armory? You'll be surprised by the inner glow you'll have after you leave, knowing that you have helped someone when he needs it most.

anniversaries

GENERAL STAFF

25 YEARS

Gladys F. Rawlings and Arvid F. Johnson.

20 YEARS

Rubye P. Ratjen and Joseph G. Sullivan Jr.

PADUCAH

30 YEARS

Seymour Bernstein, Plant Engineering.

20 YEARS

Ardyce J. Ballard.

ORGDP

30 YEARS

Harry L. Gray, TIA Barrier Manufacturing; William Jordan, Grounds Maintenance Department; Michael J. Bartkus, Instrumentation and Quality Assurance Development; Arnold A. Toney, Administrative Services; Harold B. Shnider and Robert H. Dyer, Engineering Division; Anderson W. Osborne, Building Maintenance Department; Burley P. Duncan, Converter Shop; George W. Green, Technical Information; Harold C. Woodall, Instrumentation and Quality Assurance Development; and James C. Qualls, Central Reproduction Services.

25 YEARS

Douglas R. Carter, Leonard L. Parris and Lucian E. Paulk.

20 YEARS

William T. Horton.

AIR RAID TEST

The Y-12 Plant will test its air raid siren for the first time Friday, April 2, at 11:30 a.m. The test will last less than 30 seconds.

No evacuation or action will be required by employees. This is a test only.

165289

ORNL communicators honored in STC-sponsored competition

Staff members at Oak Ridge National Laboratory have earned numerous awards in the 1976 Communications Competition sponsored by the East Tennessee Chapter of the Society for Technical Communications (STC). Winners were announced at the Competition Awards Banquet in Knoxville in February.

All winning entries will be judged in the international communications competition, to be held in conjunction with the 23rd International Society of Technical Communications Meeting in Washington, D.C., May 12-15.

William B. Cottrell, Reactor Division, was awarded the Francis McKinney Best of Show Award (named for the late chairman of the East Tennessee STC chapter) in the publications competition for the technical progress review *Nuclear Safety*, which he edits. *Nuclear Safety* also earned first place in the technical journals category, and Cottrell was awarded first place in the technical news articles category for "Plant Safety Features: the ECCS Rule-Making Hearing."

Publications winners

Other ORNL winners in the publications competition were:

- Janice Asher (editor), Information division, for "International Conference on Heavy Ion Sources," first place, bulletins; and for *An Assessment of the Environmental Impact of Alternative Energy Sources*, first place, technical reports
- George Griffith (editor), Information Division, for *Molten-Salt Reactor Program Semiannual Progress Report for Period Ending February 28, 1975*, second place, annual reports; and for "Biological Warfare and the Urban Battlefield," second place, technical journal articles;
- Barbara K. Lyon (editor), Information Division, for *ORNL Review*, first place, house organs;
- F. M. O'Hara and Sam E. Moore, both of Reactor Division, and E. C. Rodabaugh (consultant, Battelle) Memorial Institute), for *FLANGE: A Computer Program for the Analysis of Flanged Joints with Ring-type Gaskets*, second place, technical reports;
- Alice D. Richardson (designer), Information Division, for "ORMAK: the Oak Ridge Tokamak Controlled Thermonuclear Research Experiment," second place, technical news articles, and
- Willard Rodgers (compositor), Information Division, for "International Conference on Fundamental Aspects of Radiation Damage in Metals," second place, bulletins.

Art winners

ORNL winners in the art competition, which was co-sponsored by Industrial Graphics International, were:

- Bonita Elmore, Biology Division, first and second places, promotional illustration;
- John T. Maxwell, Information Division, first and second places, industrial photography, and
- Charles Tucker, Information Division, first and second places, pictorial photography.

Two additional awards also involved ORNL publications. The *Nuclear Safety* article "Nuclear Design of the Clinch Breeder Reactor Plant," written by John Graham of Westinghouse Advanced Reactors Division and submitted by William Cottrell, won first place for technical journal articles. The *Health Physics Journal*, which has its main editorial office in the ORNL Health Physics Division, was awarded second place in the technical journal category. The *Journal* is edited by Karl Z. Morgan, Georgia Institute of Technology; John A. Auxier, Health Physics Division, is managing editor.

MULTIPLE AWARD WINNER — Myrtleen Sheldon, chairperson of the East Tennessee Chapter of the Society for Technical Communications and a member of ORNL's Technical Publications staff, presents Bill Cottrell, Reactor Division, with the Best of Show Award at the 1976 Communications Competition Awards Banquet. Cottrell received the award for Nuclear Safety, *a technical progress review which he edits.* Nuclear Safety *and Cottrell also earned two first place awards in the publications competition.*

NOSECONE MATERIAL — Paul Meredith, Charles Pollock and Rudy Paluzelle, from left to right, all of Y-12's Development Division's Materials Engineering Department, observe carbon billets of the type which have been tested successfully as nosecone material in reentry vehicles. Pollock points to a low density carbon billet woven from fibers as it looks before it undergoes a densification process developed at Y-12. After the process, the billet is densified to near theoretical denisty, like the specimen at right, and is able to maintain its shape under high velocity and temperature. *(Story on page 1)*

ORMAK ion temperature

(Continued from page 1)

ing systems. Second, the temperatures produced are in substantial agreement with theoretical predictions."

Fusion defined

The Oak Ridge results also establish a new world record for the effectiveness of using magnetic field pressure to confine plasma in a standard type of tokamak. The ratio of plasma pressure to magnetic field pressure achieved was one and one-half percent, a factor of three higher than previously recorded.

Fusion occurs when deuterium and tritium ions (isotopes of hydrogen) collide at high temperature and fuse, or join together. When this happens, heat energy is released which can be used to produce electrical power.

At the extremely high temperatures necessary for a fusion power reactor, the isotopes of hydrogen exist in a fourth state of matter, called plasma. In this state, electrons are no longer tied to an atomic nucleus, and they, plus the hydrogen nuclei, or ions, are confined through the use of very powerful magnetic fields. Researchers then bring the mixture to fusion temperatures by adding energy through resistive, compressive, or beam heating.

The national program to develop power from fusion is directed by ERDA, and is carried out by laboratories throughout the country.

The fusion program at ORNL is under the direction of John F. Clarke. Lee Berry heads the ORMAK experiment group in the Thermonuclear Division.

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